REMARKS

Claims 1-19 are pending in the present application.

A. Rejection of Claims 1-19 under 35 U.S.C. §103

Claims 1-19 have been rejected under 35 U.S.C. §103 as being unpatentable over Zavracky (US-A-5,638,946) in view of Ma (US-A-6,531,668). This rejection is respectfully traversed.

As respectfully submitted above, independent claim 1 recites a micromechanical relay which comprises a substrate; a source contact mounted on the substrate; a gate contact mounted on the substrate; a pair of drain contacts mounted on the substrate; and a deflectable beam. The deflectable beam, as set forth by independent claim 1, includes a conductive beam body having a first end and a second end, the first end of the conductive beam body being attached to the source contact, the conductive beam body extending substantially in parallel to the substrate such that the second end of the conductive beam body extends over the drain contacts; a beam contact overhanging the drain contacts; and an insulator positioned between the second end of the conductive beam body and the beam contact to join the second end of the conductive beam body to the beam contact and to electrically insulate the conductive beam body from the beam contact. The second end of the conductive beam body, the beam contact, and the insulator form stacked planar layers.

In rejecting independent claim 1, the Examiner alleges that Zavracky meets all the limitations of independent claim 1, except the second end of the conductive beam body extending over the drain contacts. To meet this deficiency in Zavracky, the Examiner proposes to modify the teachings of Zavracky with the teachings of Ma. The Examiner alleges that Ma teaches a second end of a conductive beam body extending over the drain contacts. The Examiner further alleges that one of ordinary skill in the art would be motivated make such a modification, as taught by Ma, to Zavracky because the extended conductive beam body would optimize the field effect of the gate contact upon the deflectable beam. These positions and conclusions by the Examiner are respectfully traversed.

Initially, the Examiner's motivation for combining the references is technically incorrect. Ma teaches, at column 4, lines 1-40, that the cavities in the extended deflectable beam enhance

the field effect of the gate contact upon the deflectable beam. In other words, contrary, to the Examiner's assertions, it is not the extension of the deflectable beam that optimizes the field effect of the gate contact upon the deflectable beam, but it is the cavities in the extended deflectable beam that enhance the field effect of the gate contact upon the deflectable beam. Thus, the Examiner's motivation cannot be supported by the teachings of the prior art.

The Examiner further alleges that an ordinary skilled artisan would find it obvious to construct a deflectable beam that includes a conductive beam body having a first end and a second end, the second end of the conductive beam body extending over the drain contacts; a beam contact overhanging the drain contacts; and an insulator positioned between the second end of the conductive beam body and the beam contact to join the second end of the conductive beam body to the beam contact and to electrically insulate the conductive beam body from the beam contact.

To realize the Examiner's proposed combination, the amount of conductive material of the deflectable beam of Zavracky would have to be increased, thereby increasing the mass of the deflectable beam of Zavracky. In contrast, Ma, at column 5, line 37 to column 6, line 13, teaches that when utilizing a deflectable beam, the mass of the deflectable beam should be minimized to enhance the field effect of the gate contact upon the deflectable beam. In other words, the express teachings of Ma are antithetical to the proposed combination, by teaching away from the proposal of adding more conductive material to the deflectable beam of Zavracky, thereby increasing the mass of the deflectable beam.

Moreover, as set forth by amended independent claim 1, the second end of the conductive beam body, the beam contact, and the insulator form stacked planar layers. In contrast, Zavracky teaches the second end of the conductive beam body, the beam contact, and the insulator are non-stacked materials. In other words, the second end of the conductive beam body, the beam contact, and the insulator, as taught by Zavracky, do not form stacked planar layers.

Furthermore, Ma fails to teach or suggest that the second end of the conductive beam body, the beam contact, and the insulator form stacked planar layers.

In summary, the Examiner's motivation for modifying Zavracky with the teachings of Ma in order to optimize the field effect of the gate contact upon the deflectable beam is not supported by the teachings of the prior art. Moreover, the Examiner's proposed combination of

Zavracky in view of Ma would increase the mass of the deflectable beam, and thus, the resulting combination would be antithetical to the goal of Ma, namely to enhance the field effect of the gate contact on the deflectable beam by minimizing the mass of the deflectable beam.

Therefore, since the Examiner's motivation for modifying Zavracky with the teachings of Ma in order to optimize the field effect of the gate contact upon the deflectable beam is not supported by the teachings of the prior art and the Examiner's proposed combination of Zavracky in view of Ma would be antithetical to the goal of Ma, namely to enhance the field effect of the gate contact on the deflectable beam by minimizing the mass of the deflectable beam, the Examiner has failed to establish a prima facie case that the presently claimed invention of independent claim 1 would be obvious to one of ordinary skill in the art and that one of ordinary skill in the art would be motivated to combine the teachings of Zavracky with the teachings of Ma in order to optimize the field effect of the gate contact upon the deflectable beam.

However, assuming in arguendo that the Examiner can properly combine the teachings of Zavracky with the teachings of Ma, such a combination fails to teach the presently claimed invention, as set forth by amended independent claim 1.

More specifically, as set forth by amended independent claim 1, the second end of the conductive beam body, the beam contact, and the insulator form stacked planar layers. In contrast, Zavracky teaches the second end of the conductive beam body, the beam contact, and the insulator are non-stacked materials. In other words, the second end of the conductive beam body, the beam contact, and the insulator, as taught by Zavracky, do not form stacked planar layers.

Furthermore, Ma fails to teach or suggest that the second end of the conductive beam body, the beam contact, and the insulator form stacked planar layers.

Thus, Zavracky and Ma, singly or in combination, fail to teach or suggest that the second end of the conductive beam body, the beam contact, and the insulator form stacked planar layers, as set forth by amended independent claim 1.

With respect to independent claim 11, this claim recites a method for making a micromechanical relay by (a) forming a source contact, a gate contact, and a pair of drain contacts upon a substrate; (b) forming a sacrificial region over the source contact, gate contact,

drain contacts, and substrate; (c) forming a conductive beam contact region on the sacrificial region having the drain contacts thereunder; (d) forming an insulative region over the beam contact region; and (e) forming a conductive beam body on the source contact, the conductive beam body being formed further to extend laterally over the sacrificial region and the insulative region such that the conductive beam body, the beam contact region, and the insulative region form stacked planar layers, the formed conductive beam body extending laterally substantially over the source contact, gate contact, and drain contacts.

In rejecting independent claim 11, the Examiner relies upon the same arguments for rejecting independent claim 1. These positions and conclusions by the Examiner are respectfully traversed.

As noted above, initially, the Examiner's motivation for combining the references is technically incorrect. Ma teaches, at column 4, lines 1-40, that the cavities in the extended deflectable beam enhance the field effect of the gate contact upon the deflectable beam. In other words, contrary, to the Examiner's assertions, it is not the extension of the deflectable beam that optimizes the field effect of the gate contact upon the deflectable beam, but it is the cavities in the extended deflectable beam that enhance the field effect of the gate contact upon the deflectable beam. Thus, the Examiner's motivation cannot be supported by the teachings of the prior art.

The Examiner further alleges that an ordinary skilled artisan would find it obvious to construct a deflectable beam that includes a conductive beam body having a first end and a second end, the second end of the conductive beam body extending over the drain contacts; a beam contact overhanging the drain contacts; and an insulator positioned between the second end of the conductive beam body and the beam contact to join the second end of the conductive beam body to the beam contact and to electrically insulate the conductive beam body from the beam contact.

To realize the Examiner's proposed combination, the amount of conductive material of the deflectable beam of Zavracky would have to be increased, thereby increasing the mass of the deflectable beam of Zavracky. In contrast, Ma, at column 5, line 37 to column 6, line 13, teaches that when utilizing a deflectable beam, the mass of the deflectable beam should be minimized to enhance the field effect of the gate contact upon the deflectable beam. In other words, the

express teachings of Ma are antithetical to the proposed combination, by teaching away from the proposal of adding more conductive material to the deflectable beam of Zavracky, thereby increasing the mass of the deflectable beam.

In summary, the Examiner's motivation for modifying Zavracky with the teachings of Ma in order to optimize the field effect of the gate contact upon the deflectable beam is not supported by the teachings of the prior art. Moreover, the Examiner's proposed combination of Zavracky in view of Ma would increase the mass of the deflectable beam, and thus, the resulting combination would be antithetical to the goal of Ma, namely to enhance the field effect of the gate contact on the deflectable beam by minimizing the mass of the deflectable beam.

Therefore, since the Examiner's motivation for modifying Zavracky with the teachings of Ma in order to optimize the field effect of the gate contact upon the deflectable beam is not supported by the teachings of the prior art and the Examiner's proposed combination of Zavracky in view of Ma would be antithetical to the goal of Ma, namely to enhance the field effect of the gate contact on the deflectable beam by minimizing the mass of the deflectable beam, the Examiner has failed to establish a prima facie case that the presently claimed invention of independent claim 11 would be obvious to one of ordinary skill in the art and that one of ordinary skill in the art would be motivated to combine the teachings of Zavracky with the teachings of Ma in order to optimize the field effect of the gate contact upon the deflectable beam.

However, assuming in arguendo that the Examiner can properly combine the teachings of Zavracky with the teachings of Ma, such a combination fails to teach the presently claimed invention, as set forth by amended independent claim 11.

More specifically, as set forth by amended independent claim 11, the conductive beam body is formed further to extend laterally over the sacrificial region and the insulative region such that the conductive beam body, the beam contact region, and the insulative region form stacked planar layers. In contrast, Zavracky teaches the second end of the conductive beam body, the beam contact, and the insulator are non-stacked materials. In other words, the second end of the conductive beam body, the beam contact, and the insulator, as taught by Zavracky, do not form stacked planar layers.

Furthermore, Ma fails to teach or suggest that the conductive beam body is formed further to extend laterally over the sacrificial region and the insulative region such that the conductive beam body, the beam contact region, and the insulative region form stacked planar layers.

Thus, Zavracky and Ma, singly or in combination, fail to teach or suggest that the conductive beam body is formed further to extend laterally over the sacrificial region and the insulative region such that the conductive beam body, the beam contact region, and the insulative region form stacked planar layers, as set forth by amended independent claim 11.

With respect to dependent claims 2-10 and 12-19, these claims depend from allowable independent claims 1 and 11 respectfully. The Applicant reserves the right to present arguments at a later date to support the patentability of dependent claims 2-10 and 12-19.

Accordingly, in view of the above submitted remarks, the Examiner is respectfully requested to reconsider and withdraw this rejection under 35 U.S.C. §103.

Conclusion

Accordingly, in view of the reasons set forth above, the Examiner is respectfully requested to reconsider and withdraw the present rejections. Also, an early indication of allowability is earnestly solicited.

Respectfully submitted,

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